Dealing with environmental turbulence – manufacturing strategy review and the changing roles of the business functions post 2008-recession

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Abstract
The 2008 UK recession created an economic environment with greater uncertainty and one that manufacturing in general and its SMEs in particular have had to respond to with often radical changes in business practices and related decision making. One particular consequence is change in the frequency of strategy review and the differing involvement of the key business functions in this strategic assessment. The study presented makes use of a mixed-methods research approach, incorporating a survey of 104 manufacturing SMEs from the UK supported by 17 in-depth interviews involving senior managers from within the surveyed manufacturers. The findings show that the majority of SMEs employ an on-going approach to manufacturing strategy review with an increasing contribution from their sales/marketing and finance provisions, as well as specific contributions being made to the review process across the range of key business functions comprising specific interventions post-recession.

Keywords
Manufacturing SMEs, manufacturing strategy review, business functions, environmental turbulence, post-2008 recession

1. Introduction

Manufacturing has a vital role to play in the UK economy, both in monetary contribution and supply of employment opportunities (Engineering UK, 2012). Assessed financially, UK manufacturing is placed sixth on the world stage (UNCTAD, 2010). The impact of the 2008 recession on manufacturing SMEs has arguably received only limited consideration within the academic literature. Where studies have taken place, these have concentrated on finance and various dimensions of strategy development, particularly on initiatives around markets and products (Kitching *et al*., 2009a; Cowling *et al*., 2012; Smallbone *et al*., 2012). SMEs consideration has also included continuation of existence through difficult market conditions (Smallbone *et al*., 1997) as well as how organisational robustness is achieved within the sector through individual companies developing flexibility and adaptability (Churchill and Lewis, 1984; DeDee and Vorhies, 1998). However, discussions around the adoption of lean paradigms for example and the techniques for improving business sustainability have been less explicit despite a well-documented history of lean approaches being perceived as an effective cost-savings strategy (Zokai *et al.*, 2013).

This paper seeks to complement previous SME-centred studies by providing an internal focus on UK-located manufacturing SMEs (MSMEs). This focus will involve consideration of the frequency and nature of manufacturing strategy review and the changes to the intensity and characteristics of the roles played by the various business functions in contributing to

management decision-making during these times of challenging economic conditions. The role or functions assessed are the top management team, marketing/sales, finance, supply chain management, human resources and research and development.

The existing research has emphasised the nature of cross-functional/multi-functional collaboration, presenting the potential positive outcomes for new product development, promoting both effectiveness and efficiency in the pursuit of timely product design delivery and production advantages. The term "*concurrent engineering*" is often used to define cross-functional collaboration within the manufacturing/operations management literature. Despite wide acceptance of the benefits achieved through cross-functional collaboration, there is equal recognition of the associated costs that are incurred as a consequence of the various activities that underpin necessary information flows and decision making processes (Song *et al.,* 1998).

Within the extant literature that focuses on operations management, the research priorities to date have concentrated to a noticeable extent on the inter-relationship between manufacturing and marketing (Toone, 1994; Da Silviera and Souza, 2010). Therefore, opportunity exists to respond to any gap in knowledge pertaining to the rationale for, and positive outcomes achieved, by a broader group of functional relationships, especially for the SMEs, where their connection with the extant strategy literature is somewhat sparse. Moreover, the intensity and relevance of these inter-relationships is an additional area that has been under-explored. The work presented here aims to address these research gaps with a collection and analysis of primary data relating to the time period coinciding with the closing cycle of the UK economic downturn post-2008 recession. This assessment will look at the regularity of manufacturing strategy review supported by a consideration of the change in involvement from a number of the key business functions, supported by a qualitative assessment that seeks to capture what this involvement change comprises and represents. Based on an extensive literature search the authors are confident that the present paper is first work exploring the impact of a major economic recession on the manufacturing strategy formation process of the UK MSMEs sector.

This work presented here is based on mixed research methods, comprising a survey of senior managers from 104 UK-located MSMEs supported by 17 in-depth interviews from the surveyed group. This study supports the endorsement of implementing mixed methods research within the arenas of manufacturing and operations management (Boyer and Swink; 2008; Barratt *et al*., 2011), with the paper comprising a critical literature review that considers the evolving and changing role of the various business functions in the MSME setting, followed by a description of the research methods employed, the study findings and an assessment of their contribution to existing knowledge relating to manufacturing and its constituent SME sector.

2. Literature Review

2.1. Impact of environmental turbulence on MSMEs strategy

Organisations do not operate in isolation but are subject to macroeconomic, market and industry changes to their business environment. Uncertainty stemming from the external or internal organisational environment has been widely discussed within the business and management academic arena, from the early work by Drucker (1968) to the more recent research by Ward *et al.* (1996) and Geroski and Gregg (1994, 1997). Organisational survival is viewed as being very much dependent on the response and adaptation of the organisation to its business environment factors (Dreyer and Gronhaug, 2004). Collecting and analysing

information on the changes and potential direction of the business environment is essential for organisations in order to survive and seek growth opportunities (Oreja-Rodriquez and Yanes-Estevez, 2010).

Within the business and management literature the term "*business environment*" is typically defined by the following variables:

- *"Environmental turbulence"* (also known as "*environmental uncertainty"*) which represents the rate of change and innovation in the industry, and the uncertainty or unpredictability of the competition and market swings (Ansoff, 1979; Miller and Friesen, 1983; Dess and Davis, 1984; Dugal and Gopalakrishnan, 2000; Kipley *et al.*, 2012).
- *"Environmental hostility"* is defined by the degree of threat to the organisation developed by the multi-facetedness, vigour and intensity of the competition and the volatility in the industry (Miller and Friesen, 1978; Dess and Davis, 1984; Zahra *et al.*, 2000).
- *"Environmental heterogeneity"* is characterised by the market diversity which the organisation serves, the diversity of which may require variations in manufacturing and marketing strategies (Khandwalla, 1972; Porter, 1980).

Macroeconomics uses the term "*business cycle*" to refer to ups and downs of economic activity. The "*down"* phase of the business cycle is typically characterised by an economic recession (Pearce and Michael, 2006). Recessions are defined as the economic period where national GDP (gross domestic product) performance is in decline over two successive financial calendar quarters (Vaitilingam, 2009). The present paper takes the 2008 UK and global economic recession as the mid-point of two business cycles, with a steady GDP growth of the UK economy from 1992-2008 as the first business cycle and from 2008-2013 as the second cycle defined by a long and deep recession and extensively volatile economic activity.

Merging the above definitions of "*business environment*" and "*business cycle*" we could define an *"economic recession"* or "*economic downturn"* as a feature of the wider term "*environmental turbulence"*. The term environmental turbulence may include the following features: forthcoming capital reductions and shortages (Cameron *et al.*, 1987; Street *et al.*, 2011), decline of market share taken up by overseas competitors (Cameron *et al.*, 1988), industry dynamics and structure hostility (Hall, 1980; Covin and Slevin, 1989; Kipley *et al.*, 2012; Li and Lu, 2012), and general economic recessions (Ewaldz, 1990; Want, 1990; McCallum, 1991; Touby, 1991).

Covin and Slevin (1989:83) in their study on the response of US-located MSMEs to hostile business environments suggested that high business performance tends to positively correlate with "*an organic structure, an entrepreneurial strategic posture, and a competitive profile characterized by a long-term, goal-oriented approach to management, high product/service prices, and a concern for maintaining an awareness of industry trends*". The authors defined a "*hostile"* business environment by using a three-item scale (developed by Khandwalla, 1976/77) measuring: (i) risk/threat of survival, (ii) investment and marketing opportunities and (iii) level of control by business over competitive, political and technological forces. The scale also fits well with the definition of environmental turbulence. An organic business structure refers to internal attributes such as having open, flexible and informal control and management systems. Entrepreneurial strategic posture refers to adoption of innovation, pro-activeness, and risk-taking. These findings of Covin and Slevin (1989) were also supported more recently by the study of the impact of the 2008 global economic recession on Finnish

SMEs by Soininen *et al.* (2012), where arguably, the recession which environmental turbulence and evidence of hostility to organisations located in this part of the developed economies of northern Europe.

In addition to the above study by Covin and Slevin (1989) on the early 1980s US recession, a number of academic studies have been published on more recent recessions of the British economy.
Research on the early-1990s recession (Geroski and Walters, 1995; Geroski and Gregg, 1997) suggested that large-size UK manufacturing organisations mainly focused on reducing costs through the reduction of human resources and manufacturing capacity. Size and range of product families in most cases stayed the same as prior to the recession experienced at the time. Investment in manufacturing equipment (e.g. machinery, automation) was also reduced, less so investment in innovation (R&D, training) and marketing (advertising). The latter also supports Geroski and Walters' (1995) findings of a reduction in patent applications during the early-1990s recession, which potentially resulted in a decline in product development. The 2008 recession however, shows a very different response by UK businesses in respect to their human resources. A report from the Office for National Statistics (ONS, 2012) suggested that unlike previous recessions UK employers kept their employment at high levels, which consequently had a negative impact on their productivity, given the weakness and fluctuation in market demand. In addition, the Chartered Institute of Personnel and Development (CIPD Outlook, 2012) in its 2012 Labour Market Outlook report confirm that one third of the UK private sector maintained its staffing levels in order to preserve human resource skills and knowledge within their businesses. Although it is unclear as to why such a high proportion of UK businesses kept their employment levels so high, given the accompanied costs, some preliminary evidence suggests that high surpluses within the private sector accumulated since 2002 and the high costs involved in dismissing and rehiring employees, made UK businesses decide to keep their human recourses close to pre-recession levels (ONS, 2012).

Kitching *et al.* (2009a, 2009b) in their study on the 2008 recession and its impact on British SMEs identified product development initiatives as the most common business strategy to cope with reduced market demand. Interestingly, the findings show UK-based SMEs pursuing both revenue-generating (i.e. product development) and cost-cutting (i.e. conservation of resources) activities at the same time, i.e. an ambidextrous strategy as defined by Rumelt (2009) and Williamson and Zeng (2009). During recessions, organisations are under pressure to innovate which requires continued investment in R&D, training and intellectual rights, all being costly investments. The research by Kitching *et al.* (2009a, 2009b) concludes with the development of a typology classifying SMEs into three types according to their recession-coping strategies, these are listed below. The same authors conclude on the need for explanatory research which will offer an insight into business adaptation practices during economic downturns. In particular, they argue for further academic studies to explore the causes, processes and consequences of SMEs' strategies in reacting to economic recessions. Kitching *et al.* (2009a, 2009b) three-dimensional typology of UK-based SMEs defined by recession-coping strategies comprises:

- Severe-shock: a cost-cutting strategy aimed at the reduction of resource-related cost (human, premises, suppliers' payments) and increased customer focus and engagement by dealing directly with the end client.
- Limited impact: a market-development strategy aimed at increasing market share by investing in aggressive selling.

- No perceived impact: a consolidation strategy by maintaining existing product portfolio and market share.

Grewal and Tansuhaj (2001) and Hitt *et al.* (1998) have suggested that "*strategic flexibility"* during a recession offers opportunities for survival and growth. The literature defines strategic flexibility being as two-dimensional: (i) as the organisation's ability to develop and coordinate production resources (Evans, 1991; Sanchez, 1995) and (ii) as the organisation's ability to defend against threats and exploit opportunities during economic and political crises (Grewal and Tansuhaj, 2001; Harrigan and Rudie, 1980). Strategic flexibility may entail a degree of strategic change. Strategic change is often a complex process, involving planning by business owners and senior managers, and entailing long-term consequences for business performance (Whittington, 1991; Geroski and Gregg, 1994). However, during recessionary periods, such strategic change may be short-term to allow for some resource flexibility and to cope with the temporary fall in product demand. This organisational flexibility can also be considered within wider supply chain literatures as "*agility*" (Sukwadi *et al.*, 2013; Christopher and Towill, 2001; Mason-Jones and Towill, 1999).

Exploring the more practitioner-oriented literature there is stark empirical evidence that the global economic crisis of 2008 has brought a sharp decline in production output, product prices, earnings, productivity, company growth and investment for most UK industrial sectors (BDO, 2009). These business outputs are directly linked to the theoretical concept of manufacturing priorities comprising cost, quality, delivery performance and flexibility as defined by Miller (1986) and Ward *et al.* (1998), which in turn have traditionally formed the basis of the manufacturing strategy formulation process in order to achieve competitive advantage (Skinner, 1969), as highlighted earlier within the literature review. In addition, the Department for Business Enterprise and Regulatory Reform of the UK in its 2008 review (BERR, 2008) of the country's manufacturing strategy advocates the adoption of energy-efficient and waste-reduction production processes. These cost-cutting measures have become strategic objectives creating synergies between good commercial and environmental performance, offering sustainable competitive advantage. In comparison, the BERR's report of 2002 (DTI, 2002) on the UK's manufacturing strategy had a strong focus on investment in human resources and exploiting the (then) economic growth of the UK and European Union, which would have allowed the UK's manufacturing sector to develop new products and enter new geographical markets. It is therefore safe to suggest that the global economic crisis had an impact on the manufacturing strategy of UK businesses including the SME sector. From a theoretical perspective, this is also supported by Ward *et al.* (1996), who argue that manufacturing strategy, business environment and organisational structure are configured or linked to each other in such a way that these three elements influence each other (with the exception of no relation existing between organisational structure and business environment). Adding to the work of Ward *et al.* (1996), Papke-Shields *et al.* (2006) have provided empirical research that suggests the manufacturing strategy formulation process is a mixture of "*adaptive*" and "*rational*" decision making depending on the degree of strategic change dictated by the dynamic of the business environment.

To conclude, Smallbone *et al.* (2012) highlight the contradictory impact of economic recessions expressed as hostile and volatile business environments, constraining some SMEs in achieving their business objectives, while for other SMEs they create opportunities for innovation and growth. In their review of the literature on the impact of recessions on business adaptation, Kitching *et al.* (2009a) argued for more exploratory research which will

offer an insight into (i) the motivations for the particular strategies adopted, (ii) the conditions that enable or constrain such strategies and (iii) the impact on business performance.

2.2. Cross-functional manufacturing strategy formation process during environmental turbulence

The role of the manufacturing function and its contribution to the organisation's corporate strategy has been extensively debated within the manufacturing and operations management literature. With its initial conception by Wickham Skinner in the late 1960s and later by Hayes and Wheelwright (1984) who promoted the manufacturing function and its strategy as a source of competitive advantage, to more recent work by Kiridena *et al.* (2009) and Schroeder *et al.* (2011), manufacturing choices has remained a strategic priority within senior and executive management decisions and processes.

In addition to the role of manufacturing strategy within corporate strategy, there has been a number of academic studies on the relationship and integration of manufacturing strategy with other functional-level strategies. Most notable is the link between manufacturing and marketing strategies.

Skinner (1986), Toone (1994), Voss (1995), and Hill (2009) argued for the development of a closer link between the functional-level strategies of manufacturing and marketing. This allows for an efficient support of the organisation's corporate objectives. Hill (2009) claimed that in most cases the functional strategies are simply added together to form the corporate strategy, making a bottom-up approach. Papke-Shields *et al.* (2006) found that allowing independence at functional level without coordination from the corporate level leads to inconsistent decisions. Functional strategies must reflect and serve each other's needs, limitations and strengths and achieve a mutual 'fit'. In an ideal situation, corporate strategy represents the mechanism that integrates business and functional strategies. According to Toone (1994), Weir *et al.* (2000) and Da Silviera and Souza (2010), corporate strategy should integrate marketing and manufacturing strategies. The integration of these strategies is essential for the organisation to become aware of and meet its market expectations. Corporate strategy may, at times, set the context and boundaries within which marketing and manufacturing strategies develop, and at other times it will respond to strategies made in those functions. Similarly, marketing and manufacturing are not in a fixed relationship to each other. Marketing may take a lead when a market opportunity is identified but manufacturing may take the lead when technological developments of either product or process can provide a competitive advantage.

The strong link between manufacturing and marketing has also been highlighted in a number of industry reports. Recent survey data collected by the market research company Ipsos MORI (Deltek, 2012) suggests a strong emphasis on marketing and customer relationships management by North European manufacturers. The study by Ipsos MORI finds 75% of UK manufacturers were expecting an average annual growth of 3% in their market, and therefore improving customer satisfaction ratings for their business is seen as a source of competitive advantage, which complements the points made by Toone (1994) and Da Silviera and Souza (2010) above.

Empirical evident suggests that a number of links exist between the manufacturing function and supply chain management, finance and human resources. The location, manufacturing capability and quality systems of suppliers play an essential role in accomplishing the manufacturing task (Harrison and van Hoek, 2011; Sharma and Yu, 2013), with the selection

of suitable suppliers being the responsibility of the supply chain management function. Handfield and Lawson (2007) add the importance of including suppliers within the process of new product development (NPD). It is the supply chain management function that builds and maintains strong supply chain relationships, with corporate-level management supporting strategic partnerships with key suppliers. Manufacturing requires strong financial support to take advantage of process technology developments. It is the finance department that has responsibility for identifying, evaluating and allocating (with prior corporate approval) capital investment (Baines *et al.*, 2009; Schroeder *et al.*, 2011). Financial management reporting systems allow for monitoring of manufacturing costs supported by process technology applications such as enterprise resource planning (ERP) systems (Hill, 2009). Where ERP systems are used, they may function as an information management tool to assist with human resource requirements within the manufacturing function. Whether such expensive and sophisticated ERP systems are used or not, manufacturing depends on the human resource management function for operational decisions around recruitment, training and payroll, but also strategic support for communicating new practices (e.g. cross functional teams as part of TQM) and targets (Jayaram *et al.*, 1999).

3. Research approach and design

The employment of mixed-methods research in studies centred on manufacturing strategy does exist, albeit in a relatively limited way (Badri *et al*., 2000; SIOM, 2009; Kitching *et al*., 2009b). To build on this, the study presented in this paper seeks to dovetail qualitative and quantitative approaches both in the collection of research data and its subsequent analysis. By doing so, the intention is to provide insights that may be relatively limited had the study implemented either of these two adopted approaches in isolation (Creswell and Plan Clark, 2011).

The source of information that identified potential MSMEs to participate in the study was provided by the Kompass UK business directory. An online survey instrument was developed for this research, its target audience being Managing Directors or Manufacturing Directors from the MSMEs listed within this directory. The study achieved 104 usable responses, which further generated 17 interviewees from these senior roles. A common survey instrument was implemented for survey and interview, endorsing the guidance of Teddlie and Yu (2007) and Creswell and Plano Clark (2011). The survey and subsequent interviews considered the evolving and changing roles of each of the business functions and the extent of the fluidity of reviews pertaining to organisational manufacturing strategy.

The analysis performed and the subsequent presentation of the research findings is based on an application of a parallel mixed analysis, the mix comprising the qualitative and quantitative data sources (Caracelli and Greene, 1993; Tashakkori and Teddlie, 1998). The quantitative component of this analysis comprises the application of basic graphical and tabular data presentation and summary that employs percentage frequency distributions, which are appropriate for the size of data set generated. The size of the qualitative data set generated in parallel lead to the use of template analysis (King, 2004), with the subsequent co-data presentation demonstrating appropriate "*integration*" and "*nesting*" (Onwuegbuzie and Johnson, 2006; Yin, 2006), alongside synthesis with the relevant extant literature pertaining to MSMEs and the role of functions in organisational decision-making.

The survey instruments were subject to piloting to provide guidance on language and terminology employed, relevance and effectiveness of the questions presented, alongside general steer on structure, presentation and participant support. The University's ethical

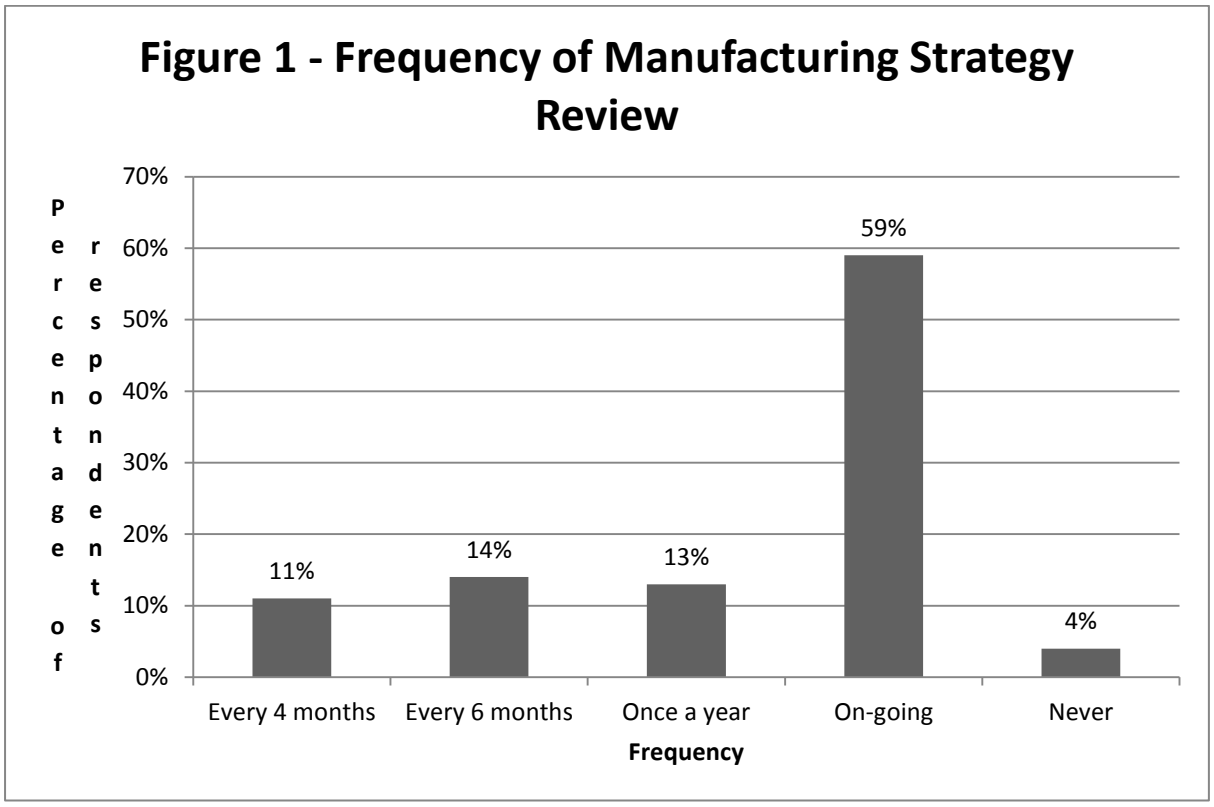
position was adhered to in terms of informed consent, as well as confidentiality and anonymity for individual participants and their host organisations. This extended to data storage, presentation of findings and subsequent research dissemination.

4. Study Findings

4.1. Frequency of manufacturing strategy review

When considering the process of strategy review within their organisations, the interview participants typically tended to view "*manufacturing strategy*" in a synonymous way to their overarching "*business strategy*", using the two terms within the interviews in an interchangeable way. Based on this experience, it would be reasonable to assume that senior management within these MSMEs do not necessarily distinguish between corporate level strategy and the functional level manufacturing strategy.

From the survey part of the primary research, a majority, 59% of the surveyed manufacturing SMEs, have indicated their organisations adopt an on-going approach to manufacturing strategy review. The overwhelming majority of the remainder adopt a more periodic approach, almost evenly split between organisations undertaking this once, twice or three times a year. The interviews suggest an upturn in terms of the extent and formality of this review process, example of interviews responses being "*a very formal strategy it goes up at every quarterly management meeting and we review how we're doing and how we can do better"* and "*it's certainly formalised and documented on a monthly basis*". The changes in approach to review being driven by radical changes and resulting from the external environment have led to further comments including "*we are probably doing it more frequently since the start of the recession because we were trying to understand what was happening in the marketplace*". Perhaps viewed with relief, only 4% of the surveyed manufacturing SMEs never review their manufacturing strategy. The distribution of review periods is presented in Figure 1.



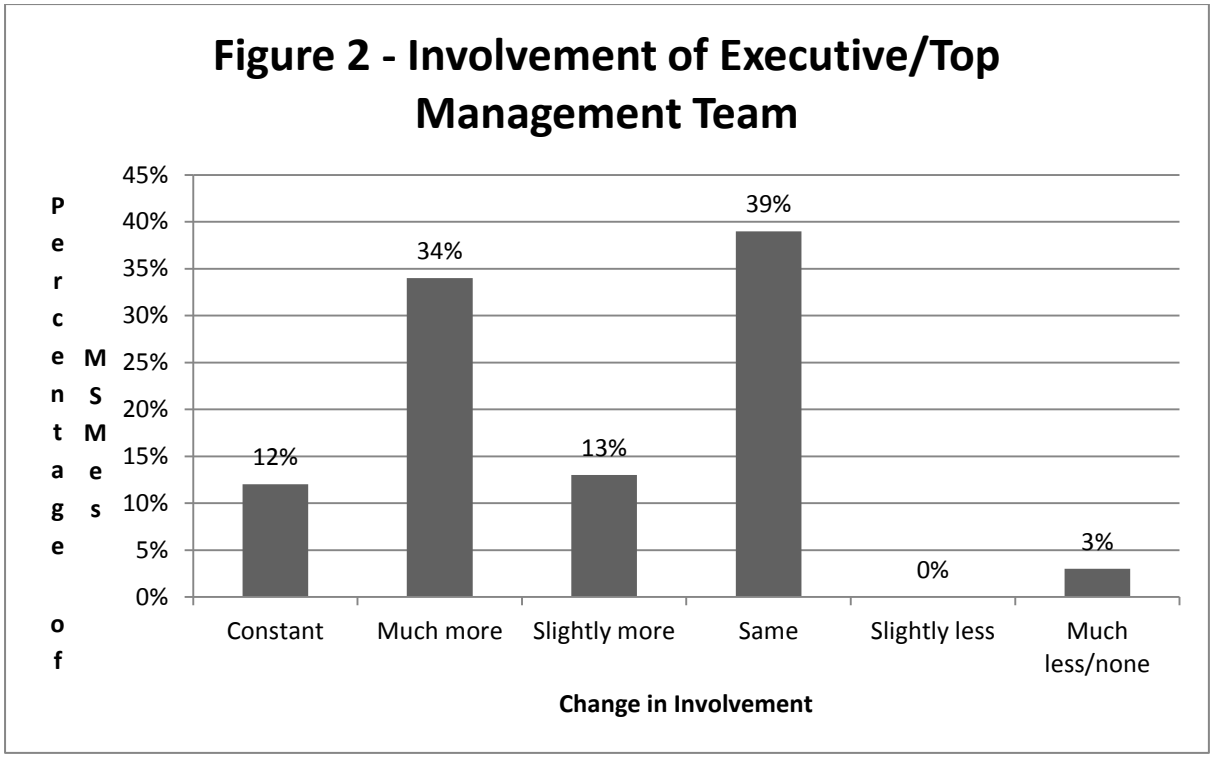
From the associated senior manager interviews, three key issues emerge; timing, level of review process formality and review implementation. The related findings here do point to some variation in practice. For some MSMEs, the recession has led to change in timing and importance. Formal strategy review has by tradition taken place annually, underpinned by relatively informal and undocumented amendments to the manufacturing strategy. The latter has tended to be both ad-hoc and on-going. Despite this sense of informality within the sector, there is still tangible evidence emerging here of formal manufacturing strategy formulation within a significant number of the manufacturing SMEs. The planning process does carry with it a level of cynicism around its effectiveness, with a preference and a necessity for fluidity and flexibility within the process, given the availability of managerial resource and the size of the manufacturers concerned, for example "*we used to up to maybe up to last year, we would have a have a formal strategy process where we were developing the business from a strategic perspective and that was a monthly development of the strategy. Probably since the sort of third quarter of last year we've done a lot less of that just cause we're fire fighting and we had a couple of big strategic opportunities on the on the radar now, which will significantly change business. It's gone from strategy to project implement*". To support effective implementation, the participating manufacturing SMEs have sought to embed their manufacturing strategy by means of formal communication methods and have raised expectations of related employee accountability across their organisations.

4.2. Role of the key business functions

The survey findings indicate the dominant role of marketing/sales in the manufacturing strategy review, followed by the involvement of the senior management team and finance function. In contrast, the human resource function has witnessed the smallest relative change in involvement between pre- and post-recession.

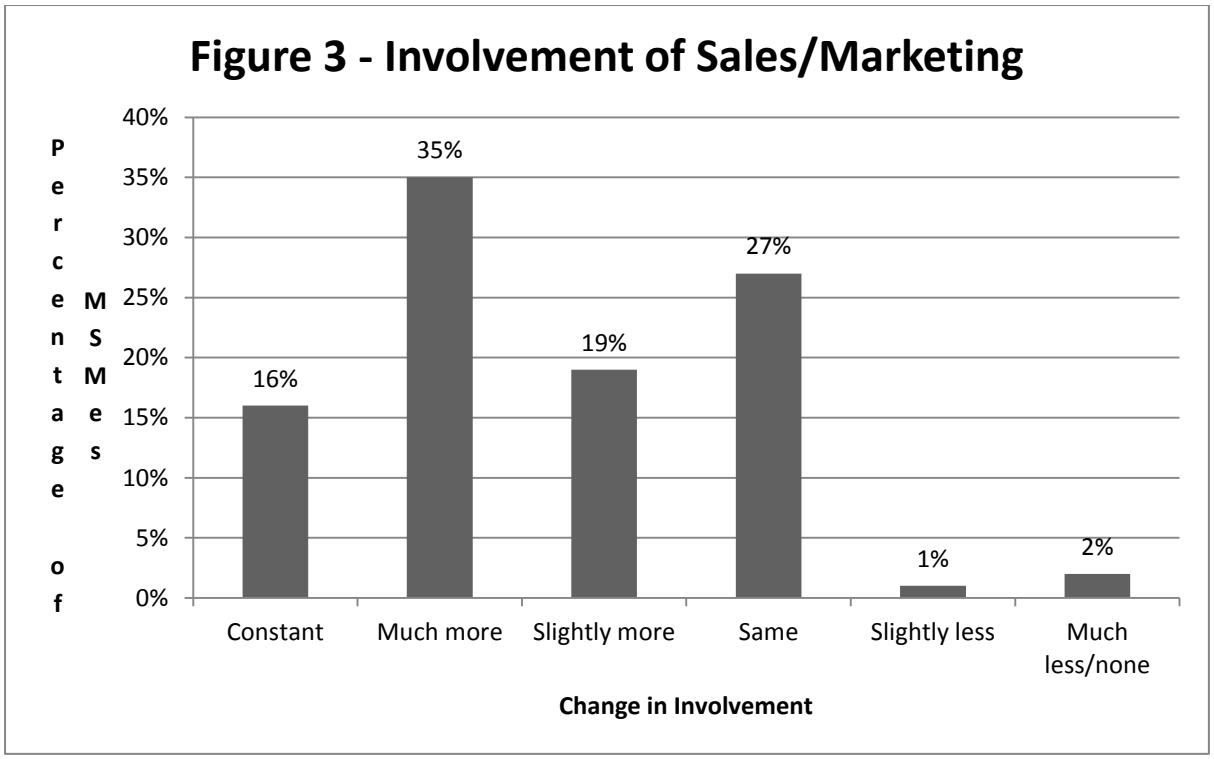
4.2.1. Senior Management

Comparison of the senior management involvement in the review process pre- and post-recession has resulted in a bimodal distribution from the survey respondents, with 39% citing the same level of involvement and 34% taking a much greater role (59% participating more in total), with only 3% indicating a decline in involvement levels, as indicated by Figure 2. In terms of the issues that are receiving greater attention post-recession, on-going rises in energy costs and the pursuit of alternative and greener energy sources dominate, as does the ever increasing importance of customer networking, involving both existing and newer client bases in order to develop long-term customer relationships.



4.2.2. Marketing/Sales

The survey has pointed to the marketing/sales function witnessing greater involvement in the steer of manufacturing strategy within the MSMEs post-recession, with 16% of respondents pointing to constant involvement and an up-turn in participation being evidenced by a further 54%, as presented in Figure 3.



The study interviews provide further support of this increased involvement, with endorsement of the function's increased relevance post-recession, for example "*marketing's really starting to take off*", "*the marketing, sales is much more involved*" and "*six years ago we didn't do any marketing and sales really*". The change in focus pre- and post-recession is supported by a particular interview contribution "*The key differential is that pre-2008 I would describe this business as an operational-led business. And where we are right now is striving to be marketing-led* […] *back in 2008 we didn't have a marketing department. Now we've got a dedicated marketing department, in fact it commands a significant amount of my attention*".

The role played by the marketers in providing a source of competitive advantage during the economic downturn is also highlighted, for example "*most companies have slashed training budgets, have slashed marketing budgets, slashed travel budgets, and they're not seeing the customer. And we've gone the opposite way which is where more networking, more prospect visiting, more marketing, more training, more anything that has to do with direct engagement with customers, we're doing more of now than we did three four years ago. We're funding that because we're growing".*

The reliance by MSMEs on senior manager personal networks has been recognised for its long-term importance, with the interviewees recognising that greater investment and participation in marketing is necessary for growth, with shift changes in market position resulting as a consequence, an interview comment being "*we're always looking for niche markets because there's more there's more margin in them. The big volume markets there's very little margin in them these days*". The importance of existing networks and senior management participation in such marketing activities was also raised earlier in the assessment of the changing contribution of the senior management team.

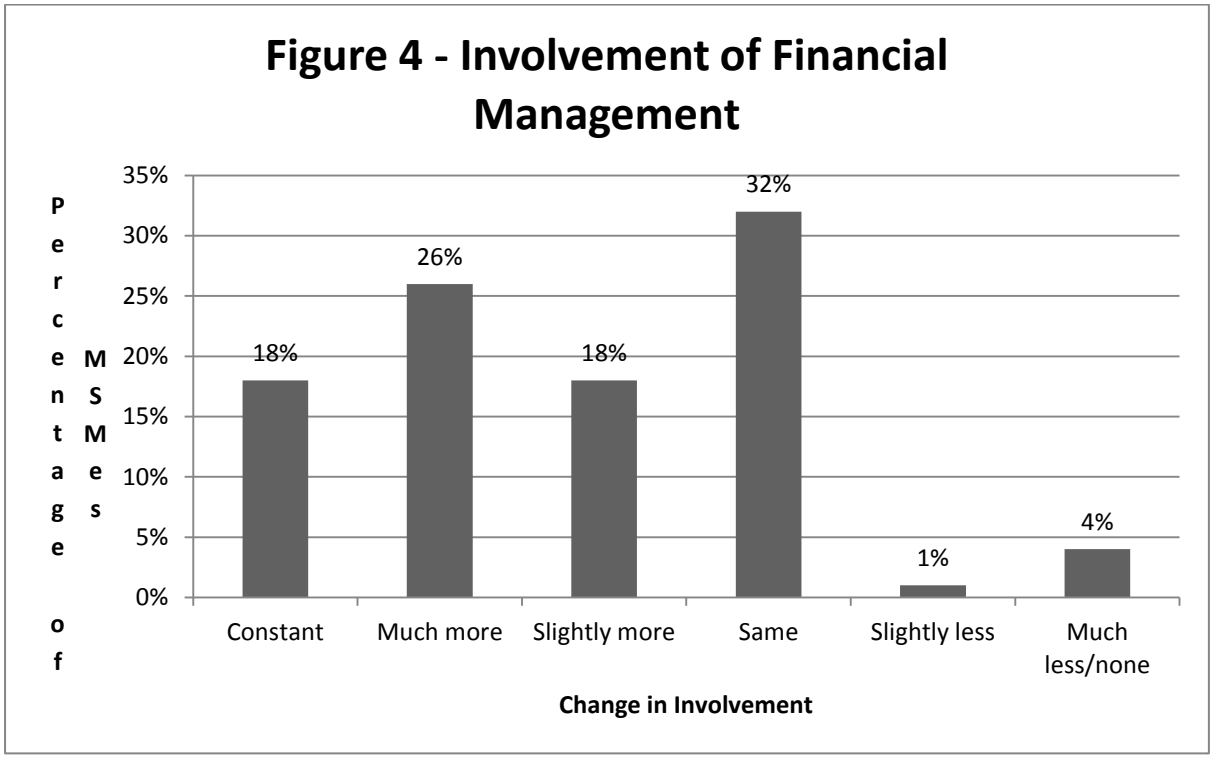
The contribution of the marketing function to the manufacturing strategy process exhibits both market and customer led considerations, examples being "*the customer doesn't necessarily want us to see us to roll up to his door and start preaching the Lean principles. It doesn't mean anything to him. What the customer does want to see is more of the four P's. More of the innovation, more of what are we going to do for him as a business for him to make more money. That is marketing, it's not Lean. Lean's not going to help him marketing* will" and "*the product cycles are shortening as with every business, the product cycles are probably down to five years now when they used to be 7, 8, 9, 10 years you could sell them the same product*".

The increased importance of marketing as a strategic driver within the MSMEs has led to a number of initiatives being put in place that have enhanced its presence post-recession. These include building dedicated marketing teams and positioning the marketing manager within the senior management team, and employing consultants or equivalent external clients to enhance the skills of employees in marketing roles. Internal developments have been built on further by establishing communication paths between the marketing, product design and manufacturing functions within the MSMEs, thus demonstrating multi-functional collaboration. A range of outward-facing activities have emerged including the development of focused promotional strategy to support a presence at trade fairs, identification of product application in new markets and promoting success stories of product applications through contribution to trade publications aimed at relevant national and international audiences. Other external activities involve enhancing customer relationship management, this being supported further by shifting the internal perception of customers to being receivers of

services built around product solutions rather than being considered as just another component of the supply chain.

4.2.3. Finance

Perhaps similar to the sales/marketing function, the role of the finance managers demonstrates greater post-recession involvement within the manufacturing strategy process, with the distribution of changes pre- and post-recession being presented in Figure 4.



Involvement post-recession is constant within 18% of the surveyed MSMEs with a further 44% exhibiting higher engagement with this strategy review process. Complementing this, 32% of the MSMEs indicate involvement staying at the same pre-recession levels for their finance managers, with only 5% indicating pointing to diminishing engagement or no involvement in these activities.

The study interviewees place the role of finance in these processes at an equal level with other key business functions, with interviewees suggesting "*finance has become a focus throughout the recession very much so*", although "*finance are part of the team not running the team*". The greater role afforded to this function is linked to specific outcomes of the recession. These include supporting businesses with reduced profit margins "*we have seen some erosion of margins*", "*it bothered the cash flow*" and "*without the finance you can't actually do anything. You can't develop the business*" being examples of responses. Sources of external funding being reduced or disappearing altogether and a reluctance by the banks to invest and support their MSME clients also represent key challenges that require finance expertise and contribution to the review of strategy.

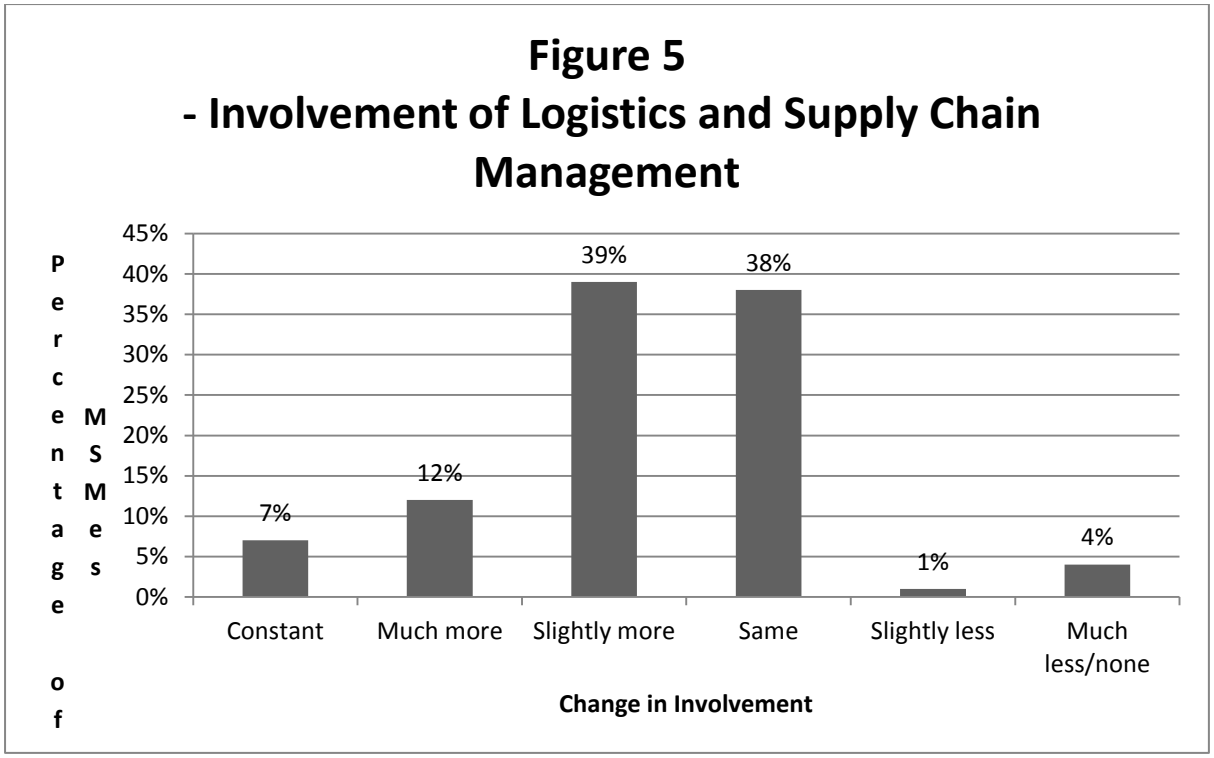
The role of the finance function at a strategic level has also allowed the MSMEs to formulate their strategies in response to hostile private investors, as well as in response to more fluid customer behaviour and associated market volatility, examples of experiences being "*basically partly because of the people we're now dealing with* […]*, are more powerful and*

what you tend to find in the bigger organisations is you and I can have a conversation at our level, and they'll say right deal's done but then they'll go and put that on the procurement manager's desk and he'll want to be able to go back to his boss and say well I got another one per cent out of it so. And so with the bigger corporations you're dealing with more negotiations with different people. And everyone wants to be able to show they've managed to hive a little bit more off so that's become a lot more involvement" and "*we needed a lot more internal financial control and inputs to ensure we could continue trading with customers who were in these industries and regions which just overnight got wiped out for credit insurance*" and "*the banks won't take any risks whatsoever cause they're all frightened of losing their jobs. So we're running with half the working capital that we had three years ago, and we've doubled in size, so we have to be very careful now in the sort of projects we take on*".

As a consequence of the reductions in sources of finance and the on-going turbulence in the markets indicated above, various strategic initiatives have been implemented by the MSMEs in response. These include a tightening of control and increased examination of the companies' operational costs, for example "*finance is more involved for keeping a very close monitor on what you spend*" and "*there's much more close scrutiny on the cost of the manufacturing"*. The channels of communication between the financial function and its manufacturing counterparts have been enhanced to deliver a closer relationship between the disciplines, this being evidenced by the application of more detailed reporting systems; "*we have cost down project teams who are sitting together saying these are the products how do we drive the costs down to this so the financial people are part of that integrated understanding how it goes on, we've improved our whole reporting package*". The role of better research skills to support business forecasting has also been recognised here.

4.2.3. Logistics and Supply Chain Management

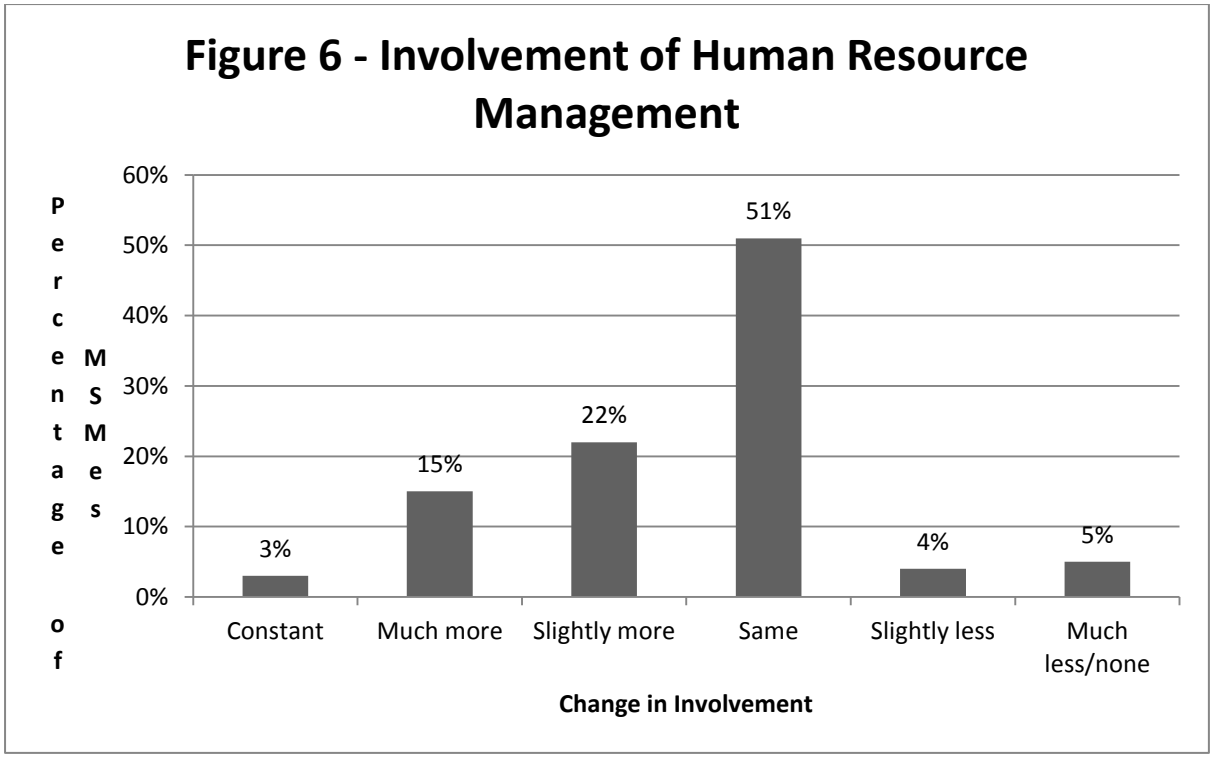
From the survey, more than three quarters of the participating MSMEs suggest that the involvement of their managers from the logistics/supply chain function is at either the same or a slightly increased level of participation in manufacturing strategy review compared with the pre-recession area. The distribution of responses is presented in Figure 5.



The proportion displaying any greater involvement post-recession is less than that exhibited by counterparts from either the sales/marketing or financial functions, with constant involvement being particularly smaller for managers in this specialism. Where the MSMEs suggest greater involvement in the review of strategy from these specialists, their contribution is driven by challenges around poor product quality supply, a diminishing supplier base caused by the UK recession resulting in previous suppliers ceasing to exist and increases in customers' demand for deliveries that are in smaller batches but in greater ordering frequency. From a strategic perspective, this on-going contribution to review has led managers in this area being given increased responsibilities around providing an evaluation of existing procurement and purchasing requirements, identifying and building relationships with sustainable suppliers and locating more cost effective shipment methods for supplies and finished products. This increased involvement is welcomed by senior managers in the MSMEs with one commenting "*supply chain and logistics, probably needs to be much more involved*".

4.2.4. Human Resource Management

The majority of surveyed MSMEs, 51%, point to the same level of involvement pre- and post-recession for their human resources function, although more than third indicate some level of greater participation in the process of manufacturing strategy review. Relative to the other business functions considered in this study, the proportion of MSMEs, at around 9%, who make either no contribution or less than provided pre-recession to the review of manufacturing strategy, represent the greatest percentage of non or reduced involvement from all of the key business functions considered. Figure 6 presents the distribution of responses.



For the MSMEs exhibiting greater contribution to the review of manufacturing strategy, a range of drivers emerged from the interviewees that contributed to this study. At the early stage of the recessionary period, many of the MSMEs had to make redundancies, although later, with the increase in manufacturing orders from early 2011 onwards, increases in employees required has emerged. During this upturn in employment levels, recognition has been given to a skills deficit amongst significant numbers of newly employed staff, resulting in increases in formal training being put in place. Moreover, the uncertainty within the sector has led to relatively low salary inflation, which post-recession, has resulted in greater levels of pay-related bargaining between employers and employees.

4.2.5. Research and Development (R&D)

The growing importance of R&D emerged from the interviews undertaken, with appropriate recognition given to its importance, for example "*putting the focus back on R&D*" and "*we don't actually spend anything like the amount of money on sales that we spend on research and development each year*" being reported perspectives. As the MSMEs have sought greater sophistication in the way they conduct their businesses, they have witnessed specific R&D investments in support of initiatives such as enhancing customer satisfaction, reduction in manufacturing lead-times and the realisation of concurrent engineering, a further example of interviewee response being "*we tried to do was to integrate the people in the design and manufacturing process much earlier in the sales process. Because we found there was a demand for a faster turnaround etc, and we've got skilled sales guys out there but they had a limited technical background and selling our products is very technical product, and they historically used to do the specification with the customer. But we found that lengthened the problem because when it came back into the design and manufacturing process some of the things they'd specified weren't actually possible. We had to stand on our heads to get round it all cause we'd need to renegotiate. So what we've done is sucked the manufacturing people further forward in to the process so they're involved in the specification process, it's much more detailed and technically specified than historically, consequently we can then process the thing through the manufacturing much faster. So we've got a quicker turnaround. We've*

reduced our average turnaround of all this significantly. Ten years ago it was always three to four months and now it's frequently less than four weeks. We're getting everybody closer to the market now".

5. Discussion and Conclusions

The study presented in this paper has given consideration to the changes pre- and post-recession of the key non-manufacturing business functions and senior management in the manufacturing strategy formulation process. It is, however, important to note, as mentioned in the findings, that senior employees from the participating MSMEs made no distinction between "*manufacturing*" and the overarching "*business/corporate*" strategy in their contributions to this study.

The interface between manufacturing and the marketing function is well established, and as such, has received consideration within the literature associated with the formulation of manufacturing strategy. The vital, outward facing role performed by the marketing function is endorsed by Hill (2009:46) who suggests "*they* [marketing and manufacturing] *constitute the basic task in any business – the sale and delivery of products*". Schroeder *et al.* (2011) further recognise the marketing-manufacturing connection, the former are defined as the recipients of customer requirements and expectations and subsequent messenger to the manufacturing function by communicating delivery expectations. Where an economic downturn is defined by relatively high market volatility and uncertainty, there is evidence of a response from the UK of manufacturers by investing in both marketing and training activities (Geroski and Walters, 1995; Geroski and Gregg, 1997). With respect to the major economic downturn from 2008 onwards, this study demonstrates that MSMEs have followed suit by increasing their marketing budgets, and where possible, have put in place dedicated marketing/sales teams and have engaged in various promotional activities that have sought to develop long-term customer relationships. The long-established and mono-manufacturing culture that has prevailed in these MSMEs has started to erode, consistent with the "*servitisation*" recognised by Neely (2008), where the higher level marketing agenda is moving towards parity with its manufacturing equivalent within the setting of the MSMEs. This outcome further accords with the work of Cagliano *et al.* (2001) who argued that manufacturing-centred attributes such as technical expertise, operational excellence and manufacturing flexibility will not support competitive advantage in isolation as markets become more volatile and competitive and take on increasingly global contexts. The growing role of the marketing function in contributing to the review of strategy supports the more recent conclusions presented by Ipsos MORI (Deltek, 2012) from a North European manufacturing perspective, where customer satisfaction and the building of long-term customer relationships represent the second most important business priority in the post-recession era.

The lesser involvement of the logistics-supply chain function in the strategic review process debates compared with their marketing counterpart has been recognised within this study, despite established understanding of the importance and expectations placed on efficient supply chain by contemporary manufacturing organisations (Hill, 2009). It is worth noting that studies on larger, more complex organisations, suggest that a "unionist paradigm" is more prevalent and is regarded as a key strategic driver for supply chain improvement and sustainability (Grant, 2012; Oglethorpe and Heron, 2010). Hayes *et al.* (2005) report the "*bullwhip effect*" creating a significant and challenging environment within the supply chain. First-tier suppliers who deploy demand forecasting and develop challenging customer schedules make a significant impact on the work of their lower-tier suppliers. MSMEs

located towards the centre of such a supply chain face a difficult environment characterised by shortage, delays and a reduction in supply quality. These conditions are worsened by economic recessions and associated changes in market conditions. MSMEs have sought to counter these problems by initiating strategic reviews of their supply chain operations. The outcomes of these reviews include selecting and building relationships with sustainable suppliers and reviewing existing procurement and purchasing requirements, initiatives recognised by this study and building upon recent findings of Sahin and Robinson (2005) and Gunasekaran and Ngai (2009). It is particularly relevant where make-to-order manufacturing processes exist (these being arguably commonplace within MSMEs), which are dependent upon information sharing at a high level and quality between the partners within the supply chain to ensure control and appropriate levels of responsiveness and flexibility in delivery performance.

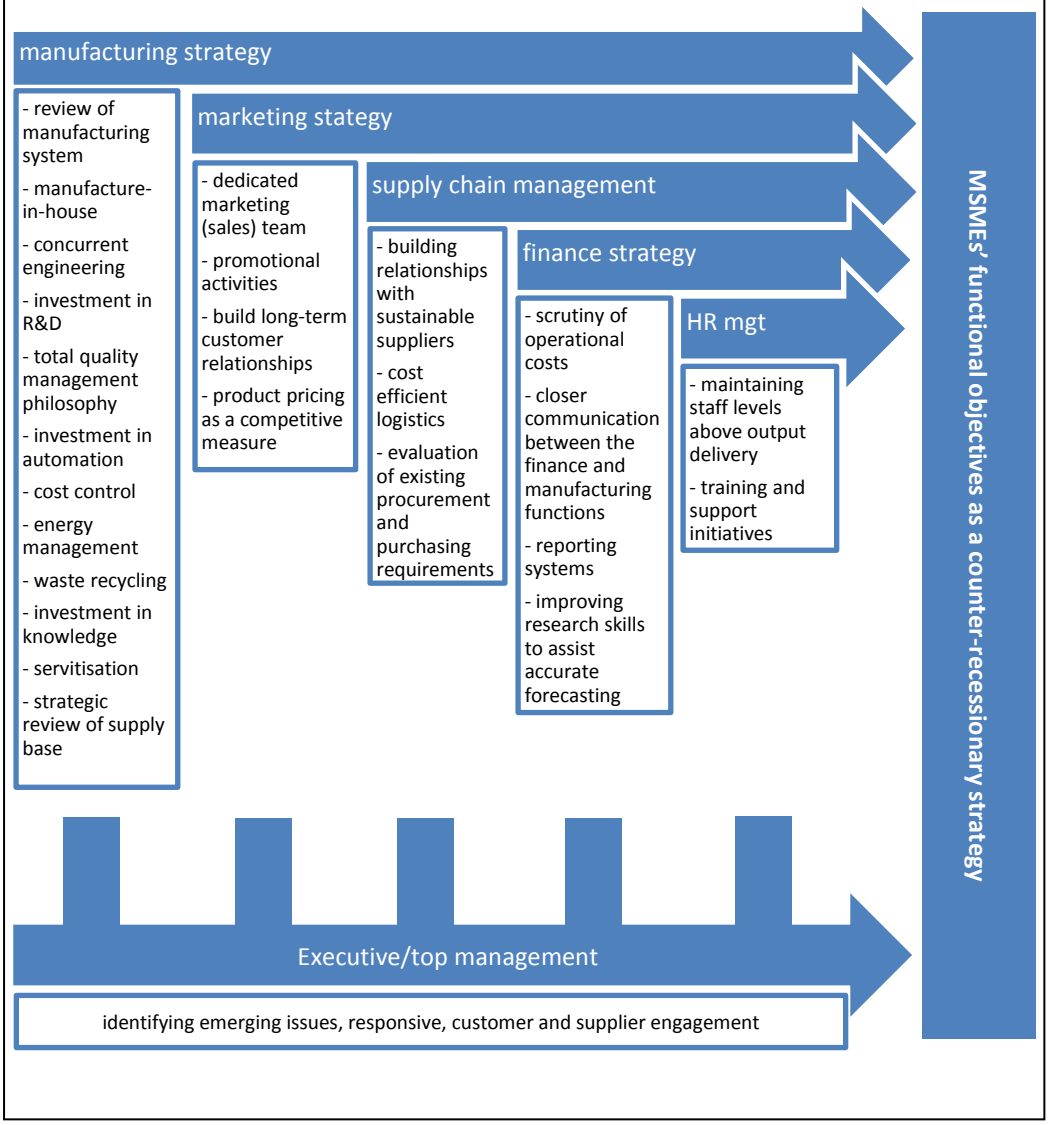
The role of the finance function is essential in the sourcing and deployment of the necessary capital investment required to underpin the MSMEs' manufacturing activities (Schroeder *et al.*, 2011). The MSMEs participating in this research have indicated an increase in involvement for their financial management function, this increasing importance being driven by the growing scarcity of external funding, whilst the management of cash flow within the respective organisations has become more critical since the major economic recession commenced in 2008. This alignment of financial priorities accord with the opinions expressed both by the Bank of England (2009) and the IMF (2009) about the UK banking sector's unwillingness to lend money to its country's SME sector during and since this major period of recession. The UK financial sector shrank by 5.2% at the beginning of the 2008 recession economic recession (quarter1 2008 – quarter2 2009) after growing by 4.1% in the previous calendar year, leading to a shrinkage in the sector's finance which had a knock-on impact on its client base, the UK manufacturers included. Being forced to work within such tightened parameters, the MSMEs have implemented systems to exercise greater control and assessment of operational costs. The value of effective financial management systems within SMEs is advocated by Kitching *et al.* (2009b), especially in periods of economic recession. The relevance of such reporting systems in supporting manufacturing companies has led to a significant proportion of SMEs in Northern Europe making the necessary investments (Deltek, 2012).

The human resource management teams provide a range of managerial interventions including leading on recruitment, selection, performance evaluation and employee training, all of which are essential in underpinning the effective execution of the manufacturing process (Jayaram *et al.*, 1999; Schroeder *et al.*, 2011). The 2008 recession forced the UK MSMEs to reduce employee levels, although job reductions are much smaller compared with the downsizing that accompanied previous periods of economic difficulty (Kitching *et al.*, 2009a). The Chartered Institute of Personnel and Development (CIPD Outlook, 2012) reports that the UK manufacturing sector has a smaller redundancy agenda compared with the UK private sector in its entirety, with 43% of manufacturers employing a staffing level that exceeds the capacity required to meet current levels of output. This strategy concurs with future growth expectations for UK manufacturing, with Engineering UK (2012) forecasting a further 2.74 million job openings within the sector by 2020. However, from the start of the recession to present day, a declining skills base further compounded by only modest supply of newly qualified engineers has given the human resources function in MSMEs particular priorities, and kept its presence at the strategic decision-making level within this sector at a level comparable to that pre-recession. These two challenges do, however, present the

opportunity for greater involvement with higher level decision-making for the HR function in the relatively near future.

The findings presented in this paper and the associated discussion provides a potentially useful contribution to understanding of how MSMEs encourage cross-functional relationships and build these into their on-going review of strategy as a counter to significant post-recession challenges. This multi-functional input into strategy review is represented diagrammatically by Figure 7. This presentation, being derived from the survey and related MSMEs interviews, combines to propose best practice in terms of multi-function involvement.

Figure 7 - Cross-functional contributions to business strategy to counter-recessionary pressures



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